

## REMARKS

The applicants appreciate the Examiner's thorough examination of the Application and request reexamination and reconsideration of the Application in view of the preceding amendments and the following remarks. The applicants also appreciate the Examiner's indication that claims 2, 7 and 28-30 are allowable.

The Examiner rejects claims 1 and 25-27 under 35 USC §102(e) as being anticipated by Raghavan (U.S. Patent No. 6,415,003).

The applicants' claimed calibration system for a communications system compensates for an unpredictable transfer function due to component mismatches and parasitic elements with a calibration system that is responsive to an altered reference signal of the transmitter circuit and adjusts the reference signal level of at least one of the transmitter and receiver circuits to compensate for variations in the transmission signal due to the transfer function of the transmission medium.

The claimed unpredictable transfer function of the transmission medium depends on the components which are part of the claimed transmission medium. Although the transmission medium typically includes a resistor and a capacitor, there may be additional resistances, capacitances and/or impedances which make up transmission medium. Some of these capacitances or impedances may be parasitic in nature, i.e., they result from various manufacturing anomalies in the circuitry, e.g., circuit boards and other components, which are part of transmission medium. Because of the nature of these unknown capacitances as well as mismatches of components used in transmission medium, the transfer function of transmission medium is unpredictable. It is not predictable how the transmission signal from transmitter circuit will be altered by the transfer function before it is received by

receiver circuit. This unpredictable gain of the transfer function can result in data transmission errors. *See* applicants' specification, page 8, line 13 – page 9, line 1.

The applicants' calibration system for a communications system as recited in amended claim 1 includes: 1) a transmitter circuit, 2) a receiver circuit, 3) a transmission medium having an unpredictable transfer function for transmitting a transmission signal between said transmitter and receiver circuits; and 4) a calibration circuit responsive to an altered reference signal of said transmitter circuit altered by the transmission medium for adjusting the reference signal level of one of said transmitter and receiver circuits to compensate for variations in the transmission signal due to said transfer function.

In contrast, Raghavan teaches and discloses a predictable transfer function. As taught and disclosed by Raghavan the transmission channel is assumed to be linear and is given by a channel function polynomial  $f(Z)$  that represents the Z-transformation of the frequency response of the transmission channel as shown by:

In addition, the transmission channel is assumed to be linear in that two overlapping signals simply add as a linear superposition. The Z-transform, (see A.V. Oppenheim & R.W. Schaffer, Discrete-Time Signal Processing (1989)), of the sampled transmission channel is given by the channel function polynomial

$$f(Z) = f_0 + f_1 Z^{-1} + f_2 Z^{-2} + \dots + f_N Z^{-N}, \quad (1)$$

where  $f_0, \dots, f_j, \dots, f_N$  are the polynomial coefficients representing the dispersed component of the (k-j)th symbol present in the  $a_k$ th symbol and N is a cut-off integer such that  $f_j$  for  $j > N$  is negligible. The polynomial  $f(Z)$  represents the Z-transformation of the frequency response of the transmission channel. ( $Z^{-1}$  represents a one period delay). See A.V. Oppenheim & R.W. Schaffer, Discrete-Time Signal Processing (1989)).

(Col. 5, lines 17-34, emphasis added.)

As shown above, Raghavan clearly teaches and discloses a transmission medium that

relies on a predictable transfer function. Therefore, Raghavan does not teach, suggest or disclose each and every element of the applicants' invention as now claimed in independent claim 1, namely, a transmission medium having an unpredictable transfer function for transmitting a transmission signal between the transmitter and the receiver circuits.

Accordingly, claim 1 is patentable and allowable under 35 U.S.C. §102(e) over Raghavan. Because claims 25-27 depend from an allowable base claim, claims 25-27 are allowable under 35 U.S.C. §102(e) over Raghavan.

The Examiner rejects claim 3 under 35 U.S.C. §102(e) as being anticipated by, or under 35 U.S.C. §103(a) as being unpatentable by Raghavan. The Examiner also rejects claims 4, 6, 8 and 31-34 as being unpatentable over Raghavan in view of Hoekstra (U.S. Patent No. 5,883,907). The Examiner also rejects claims 5 and 9 under 35 U.S.C. §103(a) as being unpatentable over Raghavan in view of Hoekstra and further in view by Salinger. As shown above, Raghavan fails to disclose, teach or suggest a transmission medium having an unpredictable transfer function for transmitting a transmission signal between the transmitter and the receiver circuits as recited in claim 1. The additional references cited by the Examiner also fail to disclose these features. Because claims 3, 4, 5, 6, 8, 9 and 31-34 depend from an allowable claim 1, these claims are allowable and patentable under 35 U.S.C. §102(e) or 35 U.S.C. §103(a) over Raghavan and under 35 U.S.C. §103(a) over Raghavan in view of Hoekstra and further in view of Salinger.

Each of the Examining Attorney's rejections has been addressed or traversed. Accordingly, it is respectfully submitted that the application is in condition for publication. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears

that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates collect in Waltham, Massachusetts, at (781) 890-5678.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'RJC', written over a horizontal line.

Roy J. Coleman  
Reg. No. 48,863